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## Let's Talk About It: High Quality Output

Gentle reader, in the midst of the dregs of winter, it is time for some good news. We are planning to offer much higher quality printing to those presently using printers attached to the Academic computer (IBM 3033/N12). We are going to acquire a Xerox 8700 laser printer, and every aspect of the move is positive.

First, the quality of output is much better. It is not as good as a typesetter, but it is a dramatic improvement over that offered by our present line printers. You will eventually be able to use multiple type fonts on a single page. Ultimately, you will even be able to generate forms, and as a natural extension, perhaps graphics, though these capabilities may take a while to implement.

You will be able to print multiple page images (equivalent to a single line printer page) on a page of output, and print on the back of the page as well. You will be able to print one up, at one image per page, or one image on each side of an output sheet. You can also print two images on one side, though these will obviously be smaller with finer print. Finally, you can print two up on both sides, giving four pages of equivalent line printer output on a single sheet of paper. Think how this mode will drastically decrease the sheer volume of paper you will need to lug around and handle! We have not come up with our final price structure, but we can say that the price of printing will decrease substantially. We will charge per image, but there will be major price breaks for printing two up and two up double sides.

Another advantage to us, particularly in the upcoming real money world, is that we can make the 8700 self-financing even with lower prices, but coupled with real money charging. We have taken it out of the funding section of our annual plan, since we are simply going to acquire it ourselves and let it pay for itself. This and the new IBM 3380 disk drives are situations where we can take advantage of the increased cost-effectiveness of really up to date technology.

We plan to install the 8700 this summer and offer it as a production service by the fall.

*Warren Jackson*

## Statistical and Numerical Analysis Computing Support Group Established

Over a recently completed one year period, the use of statistical packages increased 35%. Similar growth occurred the year before. The use of statistical and numerical packages clearly accounts for the major use of the IBM 3033/N12. Consequently, the User Interface Group has reassigned staff to provide additional support to the community of individuals doing statistical and numerical analysis computing.

During the past year, UTCS made several moves to bolster support of statistical packages, the use of which is growing much more rapidly than that of numerical packages. Last spring, a portion of Dr. John Roth's (UTCS' Numberical Packages Specialist) time was allotted to the support of statistical packages. Since then he has given several short courses as well as assuming a portion of the consulting load. During the fall, John also revised the "soon to be

continued...

**SNAC** continued

released'' documentation of our numerical packages. In another step taken to increase support, all part-time advisors were required to have a basic understanding of SAS, and they were given several courses to improve their competency in the use of the package.

Nevertheless, these efforts were not enough to meet the increased support requirements which accompanied the unabated growth in the use of statistical packages. The Central Advising Office handled an increasing number of questions related to statistical computing. Diane Mitchell, who supports statistical computing, spent more time teaching and consulting than had been necessary in past years. Finally, the Statistical Computing Users Group proposed that additional staff be assigned to support statistical packages. All of these indicators warned us that we would have to give even more support to this area.

In response to the growing demand for support, UTCS is pleased to announce the formation of the Statistical and Numerical Analysis Computing (SNAC) Support Group. The choice of name for the group is meant to emphasize that the purpose of the group is to support the computing aspects of the analysis. It is not the role of UTCS to advise on statistical or numerical methodology but rather to assist individuals in automating their methods. Also, it is not the mandate of UTCS to do actual programming for people but rather assist them in their own efforts in using a computer. The members of the Group will be giving advice and consulting, preparing documentation, giving courses, benchmarking various products, installing and maintaining packages and generally doing those things which help users help themselves.

The SNAC Support Group is supervised by Dr. William Fehlner. Most recently, Bill has been working with UTCS customers from hospitals and other affiliated organizations which use UTCS services. Most of these customers are users of statistical packages. In previous years, Bill has been involved in supporting users of statistical packages at the Arts and Science site and before that, managed the Applications Group at York University. Bill's post graduate work in Physics made him a frequent user of numerical packages. Other members of the Group are Diane Mitchell and Dr. John Roth. Diane is well known to the ''Stats'' community from her role in the Applications Support and Advising Group. Until last spring, Dr. John Roth was a member of the now transformed Communications and Small Systems Group. Since then John has been dividing his time between winding down his past commitments and providing additional support to the statistics and numerical area. With the formation of SNAC, John will be able to dedicate his time fully to the activities of the new group.

In the following article, Bill has outlined the objectives and tasks he sees for the new group. I encourage you to read this article and make your comments and suggestions known to him, to me, or to the other members of SNAC.

*Don Gibson*

# SNAC Support Group Objectives

In February, the Statistics and Numerical Analysis Computing (SNAC) Support Group was established at UTCS. The staff assigned to this new group are Bill Fehlner, supervisor, and Diane Mitchell and John Roth, product specialists. The motivations for forming SNAC and its mandate are described by Don Gibson in the preceding article. This article outlines the objectives and tasks that the SNAC group has set for itself. Although these initial directions are based on both our present contacts with users and many years of consulting experience, we hope to generate further contacts over the coming months. In this way, the resources available to the SNAC group can be best employed to meet the needs of the user community.

There are four major objectives for SNAC, all of which are interrelated and promote an environment in which the user can select effective software and utilize it efficiently. The first objective is to ensure that UTCS is a reliable and accessible source of accurate information on statistics and numerical analysis computing. The second is to help users be self-sufficient for the majority of their computing needs. A third objective is to develop our product base to provide a maximum number of users with Class A support. The final objective is to manage the product base to minimize programmer time in this area while keeping the product base current.

To reach the first objective, we plan to enhance both the information itself and the means for accessing it. In order to multiply the effectiveness of SNAC staff, time will be allocated to those activities which help the maximum number of users. For example, SNAC will assist in training the advising staff in the Central Advising Office. A schedule is being set up in cooperation with the Central Advising Office so that a product specialist from SNAC is on call several hours per day. Time will also be allocated on a regular basis for product specialists to improve their knowledge of the product base.

Several actions are planned to help users help themselves. One initiative is to develop a new mechanism for introducing users to the system of their choice. The idea is to provide a short, hands-on tutorial for new users so they will be ready to make immediate use of skills learned in short courses such as SAS101. In the area of documentation, the UTCS Catalogue: Numerical Products is currently being prepared. When it is complete, we will produce the UTCS Catalogue: Statistical Products.

In developing the product base, we require a mix of products covering a wide range of applications. These products must be able to talk to each other, must still be evolving and must have active vendor support. Staff time is being assigned to plan and implement product benchmarks for our major product offerings. The results will be used to assist users in selecting the most efficient product and in estimating project costs. As soon as the micro lab has acquired SPSS-X for the IBM PC, we will begin testing it to determine its compatibility with SPSS-X on the IBM 3033/N12. At the same time, we will be looking for possible improvements to SPSS-X access to make transfer from micro to mainframe environments easier.

At present, a review of procedures related to managing the product base is underway. Other actions will wait until this review is complete.

This introduction wouldn't be complete without a reminder of the limitations on the SNAC group. There is a rich variety of packages available for statistics and numerical analysis applications. They cannot all be supported to the same degree, and the product specialists cannot be experts in every area. Members of the SNAC group are not intended to be design specialists, rather we assist the user in implementing a completed

continued...

**SNAC** continued

design using available packages. Access to product specialists will certainly be enhanced with the additional staff assigned to the area, but their time will still be split between direct user assistance and project assignments.

SNAC has the potential for improving computing for a significant number of users. How and when it reaches that potential is partially dependent on user response. The Statistical Computing Users Group provides one forum where interested users can play an active role in setting directions for the SNAC group. As well, I and other members of the SNAC group would like to hear from individuals directly.

*Bill Fehlner*

## UniForum, January 1984

The University of Toronto was well represented at the UniForum in the January snow of Washington, D.C.; over a dozen U of T staff were present. In all, three thousand people sat in on the formal presentations at the conference, and nearly ten thousand attended the trade show. Clearly UNIX is a force to be reckoned with and a commodity to be marketed.

IBM announced a full UNIX implementation for the IBM PC/XT. Called "PC/IX", this is a complete UNIX system "ported" (adapted) by Interactive Systems Corp., of Santa Monica, CA., to run on the IBM PC/XT. Although it is priced somewhat higher than Mark Williams' Coherent for the IBM PC, PC/IX does have IBM support. AT&T Western Electric announced the second release of System V, which people are calling "5.2". The company also announced: an agreement with Digital Research to make software portable between UNIX and CP/M, the release of Motorola's official "port" of System V to the 68000; a kit of 68000 cross-development tools derived from the C compiler on the Motorola port, and a Basic language for UNIX. Motorola announced an agreement with Digital Research to market the latter's MS-DOS-compatible O/S on Motorola hardware. And what would a UNIX conference be without the appearance of yet another glossy UNIX magazine? The new periodical, unveiled at UniForum is called *UNIX World* and has on its masthead many names well known in the UNIX community.

Another important announcement was the formation of a consortium called "ISIS", an industry interchange standard for passing structured data between all manner of database managers, spreadsheets, word processors, and the like. The intent is that when you are in the middle of a spreadsheet, you can open up a new window and pass one section of data into a word processor. Any two programs conforming to the ISIS standard will be able to interact in this way, regardless of manufacturer. ISIS was spearheaded by Jim Hutton of Access Technology, in Natick, MA.

Lou Katz of the USENIX Association announced that the membership had voted in favor of a series of changes which bring its bylaws up to date and change the membership structure so that all members (except student members) are allowed to vote. This means that in elections for officers, changes to the Association bylaws, etc., UTCS can now have four or five votes instead of just one institutional vote. The next USENIX technical meeting is planned for June 1984 in Salt Lake City. There were also talks from other user groups, such as /usr/group and the European UNIX User Group.

The most obvious trend at this show was the increase in size and prosperity of the audience. Many more commercial exhibitors and attendees were present. In past

continued...

**UniForum** continued

years, the attendees had been for the most part technically oriented. A related trend is the increase in the amount of business software being made available. Another significant trend is the increase in the number of software distributors, who do not manufacture software, but market others' products to distinct or specialized markets.

The talks at the UniForum Conference were divided into the "/usr/group" and "USENIX" streams, named after the two organizations which cosponsored the conference. For the most part, they were the "nontechnical" and "technical" streams respectively. The nontechnical talks ranged from the future of UNIX to its suitability in certain markets such as desktop PCs. The technical talks covered many topics, from communications and networking, to compilers and languages, to hardware speedups for particular systems. The details of many of the talks will be published in the Proceedings. If you would like the address for ordering proceedings, please contact me at 978-8853.

In short, the UNIX Conference was a major event, and a successful and useful expedition for the UTCS staff who attended.

*Ian Darwin*

## Advising Services

Advising Services are available at three sites on St. George Campus. One of these provides phone-in service only; the other two are walk-in sites, where you may confer with an Advisor in person.

The phone-in service is available at 978-HELP weekdays between 10:00 a.m. and 6:00 p.m. The walk-in services are available at the Engineering Annex site (11 King's College Rd., Room 106) weekdays between 1:00 p.m. and 5:00 p.m., and the Arts and Science site (Sidney Smith Hall, 100 St. George Street, Room 2100) weekdays from 10:00 p.m. to 6:00 p.m.

Which site you use is a matter of personal preference. The phone-in service, is convenient because you can get assistance for your problem without leaving your office. Many users prefer the walk-in sites, however, because describing problems over the phone, where things can't be pointed at and eye contact is impossible, can be frustrating.

All three sites are staffed by students who work part-time for UTCS. Advisors are trained by UTCS, and standards must be met. Surveys have shown that the Advisors consistently resolve about 90% of the problems they get.

If an Advisor cannot answer your question, s/he will get the answer from one of the full-time Consultants. Generally, if the Advisor can get the answer from the Consultant quickly, you will not be passed on to the Consultant. This saves you time because you don't have to start dealing with a new person. It also ensures that the Advisor will be familiar with the problem and know the answer next time.

Although you can book an appointment directly with a consultant, we suggest giving an Advisor first crack at the problem. This can save you time if your problem is solved right away. (As end of term approaches, it is increasingly difficult to obtain an appointment with a consultant in less than 48 hours.)

UTCS has found that having part-time Advisors on the "front lines" of problem solving for users is a very cost effective way of serving our customers. With limited resources we can provide quality service to more users than would otherwise be possible.

continued...

**Advising Services** continued

As a former Advisor and as Supervisor of Advising and User Support Services, I am proud of the hard work and enthusiasm Advisors have been putting in this year. I have heard from a number of very satisfied customers who indicated that the answers and advice they received allowed them to be more self-sufficient in their computing.

If you have any problems, comments, or suggestions about improving service, I want to hear from you! I can be reached at 978-7109.

*Alex Nishri*

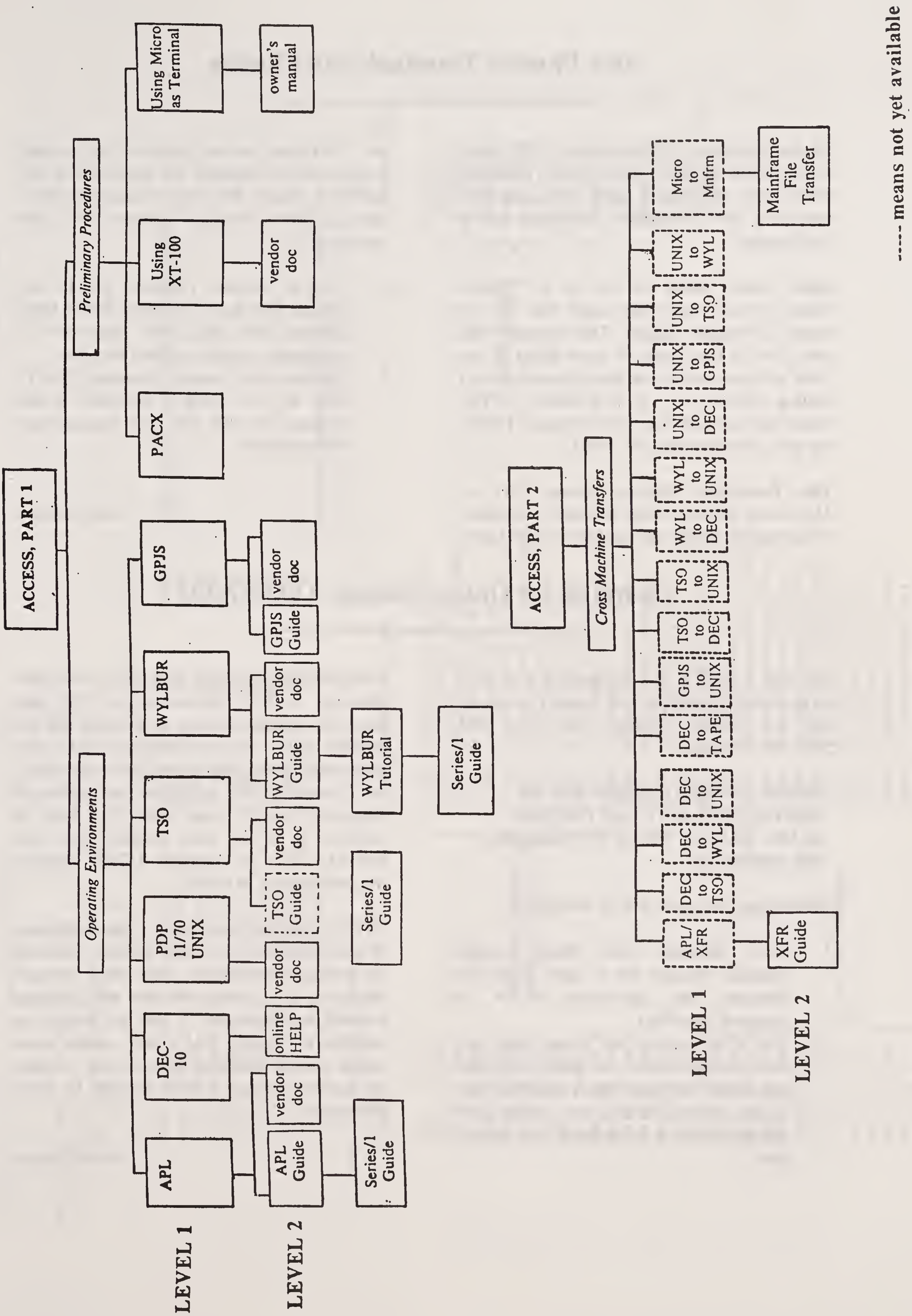
## Documentation Update

The long range goal for UTCS documentation is a complete body of online information, fully cross-referenced and accessible by keywords. Thus, a user could pull out as much or as little information about a given aspect of any system, product, or type of activity as s/he wished. For example, someone who only uses WYLBUR could find out about WYLBUR datasets without having to wade through material on other kinds of datasets. Someone else could call up a variety of information about TSO or browse through all statistical packages supported by UTCS, regardless of system. Needless to say, this happy scenario is a long way off.

In the meantime, the UTCS GUIDE TO PRODUCTS AND SERVICES (GPS) is meant to allow a little more flexibility in using documentation than has been possible in the past. A description of the general design of GPS has already appeared in this space. The most useful analogy is that of a library subject catalogue, which first narrows the subject somewhat with subheadings and then points to shelved books which deal with the subheading subject in varying degrees of detail. GPS has similar levels of information: a general, introductory level appearing in hardcopy, and a more detailed level which comprises both vendor and UTCS documentation, such as UTCS Guides and UTCS Tutorials. Ideally, documentation at this deeper level is available only online, where it can be readily updated. For a variety of reasons, however, some of these items will exist only in hardcopy for the time being.

Now that several pieces of the new documentation have been published, it should be easier to see how the new types of documents fit together. The UTCS Catalogue: Access, Part 1 introduces a new user to the various environments in which it is possible to operate at UTCS. For each service, there is an Abstract which describes what is necessary to use the service, what kind of computing activities are best suited to it, where to find further documentation, and how to use it at UTCS. Part 2 of the Access Catalogue (Cross Machine Transfers) deals with accessing one UTCS` system from another and is meant for more sophisticated users. In this case, most of the documents are self-contained and do not need pointers to a lower level. On the next page is a diagram of the UTCS Catalogue:Access.

*Martha Parrott*


ACCESS, PART 1
Preliminary Procedures
PACX
Using XT-100
Using Micro as Terminal
vendor doc
owner's manual
Operating Environments
APL
DEC-10
PDP 11/70 UNIX
TSO
WYLBUR
GPJS
APL Guide
vendor doc
online HELP
vendor doc
TSO Guide
vendor doc
WYLBUR Guide
vendor doc
GPJS Guide
vendor doc
Series/1 Guide
Series/1 Guide
WYLBUR Tutorial
Series/1 Guide
LEVEL 1
LEVEL 2
ACCESS, PART 2
Cross Machine Transfers
APL/ XFR
DEC to TSO
DEC to WYL
DEC to UNIX
DEC to TAPE
GPJS to UNIX
TSO to DEC
TSO to UNIX
WYL to DEC
WYL to UNIX
UNIX to DEC
UNIX to GPJS
UNIX to TSO
UNIX to WYL
Micro to Mnfrm
XFR Guide
Mainframe File Transfer
LEVEL 1
LEVEL 2
---- means not yet available

## New Physics Terminal Site Closing

At the beginning of November 1983, signs were posted in the New Physics Terminal (NPT) site, informing users of planned removal of NPT keypunch machines and a card reader.

Users were asked to fill in a "User's Notes" every time they used the site, in order to evaluate usage. The response was very low; in fact, only 24 users filled in the User's Notes during the three month period ending January 31. It is therefore UTCS' intention to close the New Physics Terminal site effective May 31, 1984.

The Education Facility, Room 221 in McLennan Laboratories, provides a number of terminals which can access UTCS facilities. This area has no printers, but printed output can be obtained via the Central site facility in Room 367. Other locations available to users needing printers and card readers are:

1. Arts & Science Terminal (AST) site on the 2nd floor of Sidney Smith Hall, Rooms 2104 and 2105. There are 27 terminals available at this location.
2. Engineering Annex Terminal (EAT) site at 11 King's College Road, Rooms 103 and 104. This location has 40 terminals.

*Vera Cabanus*

## Charging for Online Storage (3033/N12)

On May 1, UTCS will implement a change in accounting practice with respect to charging for online storage on the IBM 3033/N12 system:

> Online storage charges will be summarized daily and charged to the SAC to which the datasets are registered.

The impact on users will be twofold:

1. SAC balances will reflect online storage charges on a daily basis (at present, the appropriate CAN is charged monthly).
2. The CAN report will show daily online storage totals for each SAC and an online storage report showing datasets deleted during the month and datasets held at monthend (see example).

Users should plan now to adapt to the new approach — SAC allocations for the new fiscal year should include an increase for estimated online storage charges. SACs are suspended when allocations are exhausted, but datasets will continue to generate charges. Charges cease when the SAC is deleted, at which time datasets are also deleted. This is standard UTCS practice and will remain in effect.

UTCS views this change as a rationalization of the treatment of online storage, making its charging consistent with other system resources. It is hoped that this will facilitate account management. It will no longer be possible to request SACs that *cannot* incur online storage charges. System use, including online storage, will be limited by SAC allocation.

*Marg Doherty*

```
                     UNIVERSITY OF TORONTO COMPUTING SERVICES                 PAGE 007
                                                                        DATE: MAY 31 84
ACTIVITY REPORT FOR CUSTOMER ACCOUNT NUMBER 6789

MR. P. USER

  UTCA ONLINE STORAGE

    DATE              AMOUNT         SAC     DATASETS   TRACKS

    MAY 24 84        $16.70         1234         63      1237
    MAY 25 84         16.70         1234         63      1237
    MAY 26 84         16.70         1234         63      1237
    MAY 27 84         16.70         1234         63      1237
    MAY 28 84         18.72         1234         63      1387
    MAY 29 84         18.75         1234         64      1389
    MAY 30 84         18.85         1234         65      1396
    MAY 31 84         18.85         1234         65      1396
                     ------
                    $669.95

  UTCA DATASET LISTING

    DATE                             SAC DATA SET NAME                                  D-DATE   ALLOC

    MAY  3 84                        1234 TS03456.DSXACT.DATA                           840504       1
    MAY 14 84                        1234 TS03456.DC1.CNTL                              840515       1
    MAY 14 84                        1234 TS03456.SFSM8168.DATA                         840515      27
    MAY 14 84                        1234 TS03456.22.CNTL                               840515       1
    MAY 14 84                        1234 TS03456.23.CNTL                               840515       1
    MAY 20 84                        1234 TS03456.RHDS.BACK.CNTL                        840521       1
    MAY 20 84                        1234 TS03456.RHDS.FIRST.PLI                        840521       1
    MAY 20 84                        1234 TS03456.RHDS.CLC.PLI                          840521       2
    MAY 20 84                        1234 TS03456.RHDS.PLI                              840521       8
    MAY 20 84                        1234 TS03456.RHDS.PROC                             840521       6
    MAY 20 84                        1234 TS03456.AT.DATA                               840521       2
    MAY 20 84                        1234 TS03456.ATXLETR.DATA                          840521       4
    MAY 20 84                        1234 TS03456.HSSAS.DATA                            840521       4
    MAY 21 84                        1234 TS03456.MD.DATA                               840522     100
    MAY 21 84                        1234 TS03456.CP1.PLI                               840522       3
    MAY 21 84                        1234 TS03456.FP.DATA                               840522       4
    MAY 22 84                        1234 TS03456.LCWSLC.DATA                           840522     500
    MAY 31 84                        1234 TS03456.ATMXSTAT.DAILY                        840523       1
    MAY 31 84                        1234 TS03456.COMMOS.CNTL                                        3
    MAY 31 84                        1234 TS03456.INSYPROD.TABLES                                   40
    MAY 31 84                        1234 TS03456.CANFUP.CNTL                                       40
    MAY 31 84                        1234 TS03456.CANFUP.PLI                                         1
    MAY 31 84                        1234 TS03456.CANLOC.CNTL                                        2
    MAY 31 84                        1234 TS03456.CANLOC1.PLI                                        1
    MAY 31 84                        1234 TS03456.CANRC.CNTL                                         1
    MAY 31 84                        1234 TS03456.CANRC1.PLI                                         1
    MAY 31 84                        1234 TS03456.A3.CNTL                                            2
    MAY 31 84                        1234 TS03456.A3DAILY.PLI                                        1
    MAY 31 84                        1234 TS03456.A3WRK.PLI                                          1
    MAY 31 84                        1234 TS03456.A4.CNTL                                            2
    MAY 31 84                        1234 TS03456.A4WRK.PLI                                         54
    MAY 31 84                        1234 TS03456.EK.LOAD                                            7
```

**SAC** daily charge for online storage

month's total for USER's online storage

datasets deleted during the month

deletion date

date last charged

# The APL High Speed Print Utility

On Monday January 30, 1984, the APL High Speed Print utility was installed for production at UTCS. The interface to this utility is located in the workspace 1 HSPRINT. The functions in 1 HSPRINT may be used to submit high speed print requests, to monitor requests which have been submitted, and to withdraw requests which have not yet been processed. HSPRINT requests may be submitted interactively or under program control.

1 HSPRINT is not to be mistaken for the much older workspace, 3 HSPRINT, which contains utility functions for the workspace, 1 FILEPRINT. Eventually, 1 HSPRINT will completely replace 1 FILEPRINT. 1 HSPRINT is a superior product and is supported by the vendor, I.P. Sharp Associates; support for 1 FILEPRINT was dropped several years ago. Other advantages of HSPRINT over FILEPRINT include:

1. Compatibility with ⎕OUT.
2. The ability to query the status of your print request.
3. Better control over the printing of your job and the format of your output.
4. HSPRINT is able to print numerical output successfully, and output which has more than two dimensions.

The primary sources of documentation for the 1 HSPRINT utility are the Sharp APL Technical Notes, numbers 2 and 8 (SATN-2, SATN-8). These are available at the UTCS Information Office, or directly from I. P. Sharp Associates. There are a large number of documentation variables in this workspace, most of which are taken directly from SATN-8 and are quite long. In addition there are a few "HELP" variables added by UTCS which summarize the functions available in this workspace. To explore the in-workspace documentation, sign on to APL and type:

```
)LOAD 1 HSPRINT
DESCRIBE
```

*Mary Ann Lawry*

# Gould and Calcomp Support for MLAB

Modeling LABoratory (MLAB) is an interactive system developed to run on DECsystem-10 by the Division of Computer Research and Technology at the National Institutes of Health, Maryland. It is mainly designed for mathematical modeling and graphics.

MLAB supports a number of different graphics CRT displays and hardcopy devices. The Calcomp support in MLAB has now been modified to use the Gould and Calcomp plotters on our IBM 3033/N12 (UTCA). The modification has been in effect since February 20, 1984.

The modified version of program PLOTX converts picture files (with the PLX extension) that have been created by the PLOT command in MLAB, into a vector file (OMNIUT.VEC). Further manipulations such as scaling, offsetting, and overlaying of graphs are possible under PLOTX. To run PLOTX, enter:

```
R PLOTX
```

while in monitor mode.

The resulting vector file OMNIUT.VEC may then be processed and submitted to the IBM system for automatic plotting at the Gould or Calcomp plotter. The MIC file for doing this is called SUBPLX which may be invoked by entering:

```
DO SUBPLX
```

continued...

**MLAB** continued

while in monitor mode. Since the Gould and Calcomp plotters run under the IBM 3033/N12 machine a System Access Code (SAC) for that machine is required.

Both PLOTX and SUBPLX guide users with interactive prompts, most of which have default actions and further explanations when requested. If there are any questions, please contact Kin Fong at 978-4924.

*Kin Fong*

# BMDP '83

BMDP '83 arrived recently and will be available to users in the near future. Three programs in this release have changed extensively. Block clustering (3M) has been entirely rewritten. Univariate and Bivariate Spectral Analysis (1T) has been substantially revised. Documentation changes for these two programs can be found in the 1983 revised printing of the BMDP Manual. Several changes have also been made to 2T, Box-Jenkins time series analysis program.

The following new features common to all programs have been added:

- The TRANSFORM paragraph contains 26 new functions for summarizing across variables, 8 functions for manipulating dates, 2 functions for replacing missing values using linear interpolation, and 2 functions for printing values and text for selected cases.
- The SAVE paragraph contains new options that allow the user to save subsets or to change the structure of a dataset, and to replace missing or out-of-range values.
- Programs now ignore anything on BMDP instruction input lines placed after the symbol "#". Thus comments can be easily added to BMDP.
- The dollar sign ($) can now be used as the paragraph separator in BMDP, instead of a slash (/). A semicolon (;) can be used as the sentence terminator instead of a period (.).
- Two new keywords, EACH and ALL, can now be used wherever a list of numbers or names is required. When EACH. is stated, the feature is provided for each variable or group separately. When ALL. is stated, the feature is provided for all the variables or groups together.

There are also some new program-specific features. Multiway Description of Groups (9D) has two new miniplot options to print up to eight plots per page of cell means for one variable. In Bivariate Scatterplots (6D), the scale of scatterplots for grouped data can now be specified in the PLOT paragraph. Thirteen statistics can now be plotted, printed, and/or saved in Stepwise Regression (2R) for diagnostic purposes. Multiple comparison tests, multiple range tests, and confidence intervals are now available in Description of Groups with Histograms and ANOVA (7D). As well, some corrections have been made to errors that had been found.

The 1983 Revised BMDP Manual can be purchased at the UTCS Information Office. Please watch HOTNEWS and *COMPUTERNEWS* for further notices about when BMDP '83 will be available for testing.

*Diane Mitchell*

## IMSL Updated

The International Mathematical and Statistical Library (IMSL) of FORTRAN callable subroutines has been updated to level 9.1. This change will take place on March 5, 1984 and involves relatively minor changes to 20 routines, with no change to the documentation. In 9 cases, the "old routine is adequate, but computations are affected in some cases." In 11 cases, the "old routine is not adequate in some cases." The new versions will be accessed by default as of March 5.

The older versions will be retained on the system until May 1, 1984 in the datasets "APPL.MATH.OLD.IMSLSLIB" for the single precision versions and "APPL.MATH.OLD.IMSLDLIB" for the double precision versions. Users encountering difficulty with this change or desiring more information should contact the Central Advising Office at 978-HELP.

*John Roth*

## Media Conversion

UTCS would like to be able to assess the requirements of the University community with regard to media conversions of microcomputer data. Most typically, this involves transfers of data from one type of floppy disk (diskette) to another. Also possible are transfers from microcomputer media to larger computer systems using magnetic tape. We are already doing a limited number of such transfers informally through our microcomputer lab, and we are considering that such a service may be desirable as a routine function. Since each type of transfer is different (generally dependent on computer, medium and operating system types), a knowledge of what types of transfers are required and the likely volume of such activity would aid us greatly in planning for the purchase of such conversion equipment and the allocation of personnel for this function.

If you use a small computer and may require media transfers either now or in the forseeable future, please tell us:

- Your Name
- Department and departmental address

For the machine originating data:

- Type of computer(s)
- Medium format (disk or tape size, density, etc.)
- Operating system

For the machine receiving data:

- Type of computer(s)
- Medium format (disk or tape size, density, etc.)
- Operating system

Please note that such a service would be charged for at rates that would reflect our costs. At present some such conversion services are commercially available outside the University, but they can be quite expensive and difficult to find. Any comments on the usefulness of this service will be appreciated.

Mail replies to: A.Sokoloff
University of Toronto
Computing Services
Sandford Fleming, Room 4306
10 King's College Rd.
Toronto, Ontario
M5S 1A1

*Arny Sokoloff*

## An Alternative Path to the Xerox 9700

UTCS' 9700 printing service (offered in conjunction with K.G. Campbell Corporation) provides output on standard white paper, using a variety of type styles. UTCS now provides another way to prepare material for Campbell's 9700. Using this alternative service, users can produce their own tape, deliver the tape to Campbell and pay for the printing themselves. This could be to their advantage if they wanted to print on a different type of paper, for example.

Users would use the service themselves; output that would normally be printed on the line printer through the "SYSOUT=A" parameter would instead be put through a program on the IBM 3033/N12. This program inserts into the user's text specific setup information that the 9700 requires and would put the results on tape. The tape would then be essentially the same as the tapes produced by UTCS for its printing service, so that no special setup at Campbell Corporation would be required.

If you are interested, please call Mr. Allen Ng at UTCS (978-6050) for information about how to use the UTCS tape preparation program. If you then choose to use this service, you will also have to call Campbell Corporation (at 363-4434) to make accounting arrangements.

*John Bradley*

## HSM

Datasets which are migrated by HSM are also copied to tape; this is a regular UTCS backup procedure. As part of online storage management, UTCS intends to delete from online storage all migrated datasets which have not been referenced for six months and to copy them to tape. There will of course be procedures for recovering the HSM tape copies.

This policy is meant to ensure that migration space will be available as online storage use continues to grow. Thus far, only internal (UTCS) datasets have been deleted in this way; however, in September 1984, this policy will be implemented to include all users.

*Bill Lauriston*

## DSMAP Changes

Users of the UTCS utility DSMAP (used to obtain information on the status of user datasets on the IBM 3033/N12) may have noticed that the utility now prints out the names of migrated datasets and issues a more meaningful message to that affect.

UTCS has begun feasibility studies of user cost and system overhead involved in supplying more information for users on the status of their migrated datasets.

Please watch *COMPUTERNEWS* and HOTNEWS for future developments.

*Herb Kugel*

## FORTRAN Interactive Debug Release 2.2 Becoming Available

The IBM Interactive Debug package for FORTRAN Release 2.2 is becoming available at UTCS. The package has been greatly expanded and will now support VS FORTRAN Release 1, the UTCS production FORTRAN.

IBM has enhanced the package and improved the documentation. TSO users should enter

TFORT

If you have any question or concern, please contact the Central Advising Office at 978-HELP. Please watch the TSO BROADCAST News for installation information.

*Herb Kugel*

## For Sale: Arisia System IIIA Microcomputer

The Department of French has for sale the following piece of equipment suitable for word processing, data processing, programming and compiling.

*Arisia System IIIA microcomputer,*
*with 64K RAM, Z80A CPU, S-100 bus,*
*dual 8 inch double density disk drives,*
*492K per drive, 3 serial, 2 parallel*
*ports, and software including CP/M2,*
*CBASICII, Ed, Wordstar, Microwyl, Talk.*

**Price $3300.**

Interested parties are asked to contact Russ Wooldridge at 978-3167, or the Departmental office (7 King's College Circle) at 978-3167.

## UTCS Noncredit Short Courses

Computing Services is offering the following short courses throughout March and April. Complete course descriptions for these and other noncredit courses offered at UTCS are available at the Information Office, Engineering Annex, Room 206.

All short courses are held in the UTCS Education Facility, Room 221, McLennan Physical Laboratories. Due to the limited number of terminals available for our hands-on courses, and seating capacity in the Education Facility, registration is required for all short courses.

Please note that we reserve the right to cancel courses, if registration is too low.

Anyone interested in taking any of these courses must register in person with:

Educational Services Support Specialist
Engineering Annex, Room 207
978-4565

A $10 Administration Fee, payable either by cash or cheque, is due at the time of registration. A noncomputing appropriation number is acceptable for payment for a minimum of two course registrations.

Registrants for hands-on courses using the IBM system are required to hold a valid Service Access Code (SAC). For hands-on courses using the DECsystem-10, registrants must have a valid project-programmer number. You may arrange to open an account with the UTCS Account-

continued...

**Noncredit Short Courses** continued

ing Office, McLennan Physical Laboratories, Room 337.

### DDS101 - Introduction to IBM Disk Datasets

Date: March 15, 1984
Time: 2:00-4:00 p.m.

Date: April 6, 1984
Time: 10:00-12:00 noon

### JCL101 - JCL for Beginners

Date: March 26-30, 1984
Time: 11:00-12:00 noon

### SAS101 - Introduction to SAS

Prerequisite: DDS101, WYL101

Date: March 19-23, 1984
Time: 10:00-11:00 a.m.

### SAS201 - Intermediate SAS

Prerequisite: SAS101

Date: April 23-27, 1984
Time: 2:00-3:00 p.m.

### SOS/SCR101 - SOS/SCRIBE for Beginners

Date: March 12-16, 1984
Time: 9:30-12:30 p.m.

### SCR102 - SCRIBE for Beginners

Date: April 12-13, 1984
Time: 9:30-12:30 p.m.

### WYL101 - Introduction to WYLBUR

Prerequisite: DDS101

Date: March 19-21, 1984
Time: 2:00- 4:00 p.m. (March 19-20)
2:00- 5:00 p.m. (March 21)

Date: April 9-11, 1984
Time: 10:00-12:00 noon (April 9-10)
10:00- 1:00 p.m. (April 11)

*Irene Rosiecki*

## Change Committee

### Changes To The Academic and Administrative Systems

1. Old versions of SCRIPT were removed from the 3033/N12 on January 9.
2. SAS 82.2 was deleted from the 3033/N12 on January 16.
3. The VOLUME Utility option was fixed on January 11.
4. VS FORT prompter was installed for testing on the 3033/N12 on January 25.
5. Release 2.2 of FORTRAN Interactive Debug was installed for testing on the 3033/N12 on January 25.
6. The NJE link between the 3033/N12 and 4341 systems was changed to SNA on January 25. This has improved performance of the link and has freed up 2 3705 ports.
7. The CVOL was converted to ICF on January 29, improving performance on the 3033/N12 computer. IEHLIST and IEHPGM are no longer appropriate for catalogue processing. Conversion of the master catalogue is scheduled for February 25.
8. Volume Serial name reporting for 3033/N12 datasets was dropped from the CAN reports starting with the January report.
9. An upgrade to Mark IV was installed on January 9, which will make it compatible with IBM 3380 disk storage.

### Changes to APL

1. HSPRINT was installed for production on January 30. This utility replaces FILEPRINT which was out of date and was not being supported by SHARP.

continued...

**Change Committee** continued

### Changes to DECsystem 1090

1. Support for MLAB, a graphics product, has been approved for the Gould and Calcomp plotters, and should be available by mid-February.

### Changes to PDP 11/70

1. Two direct lines are to be added to this machine for the Statistics Department.

### Changes To Other Systems and Services

1. On January 18, the parity bit was suppressed for intercampus transmissions among VAX systems at CDF, Erindale, Scarborough, and the Engineering Annex computing sites. This will provide more efficient data transmission.
2. Three new lines are to be added to the pool of Class 132 PACX ports to help alleviate queuing problems.

*Joan Coutts*

## Hours of Service

The following hours of service will be in effect for Good Friday through Easter Sunday.

| | April 20 (Friday) | April 21 (Saturday) | April 22 (Sunday) |
|---|---|---|---|
| *IBM 3033/N12 GPJS(Classes B,C,E),<br>* TSO, Calcomp | closed | 10:00-18:00 | 10:00-18:00 |
| *IBM 3033/N12 GPJS(Class A),<br>* WYLBUR, APL | unattended | 10:00-18:00** | 10:00-18:00** |
| DECsystem-10, PDP 11/70 | unattended | 10:00-18:00** | unattended |
| BICS | unattended | unattended | unattended |
| LIBRA | unattended | unattended | unattended |

* Note: As the above table indicates, the IBM 3033/N12 will be unavailable on Friday, April 20. During this period, IBM will be performing required maintenance activities. It is expected that IBM will complete their tasks late in the day and that these services will run unattended thereafter.

** Running unattended outside these hours.

Normal hours of service for all systems will resume on Monday, April 23, 1984.

## Personnel Changes

**Danielle McKenzie** has left Systems. We wish her the best of luck and much happiness in the future.

I would like to welcome back **Adriana Koufis,** UTCS' Staff Support Supervisor, who has returned from maternity leave.

*Elizabeth Weitmann*

## New UTCS Documents

### New UTCS Documents in hardcopy

Previously announced:

The SOS Workbook
UTCS Catalogue: Access
UTCS Catalogue: Text Products
UTCS Guide to Mainframe File Transfer Facility
UTCS Guide to XEROX 9700 Printing

### New UTCS Guides online

UTCS Guide to APL XFR (MANUAL=APLXFR)

Previously announced:

UTCS Guide to APL (MANUAL=APL)
UTCS Guide to GPJS (MANUAL=GPJS)
UTCS Guide to WYLBUR (MANUAL=WYINTRO)
UTCS Guide to XEROX 9700 Printing
  MANUAL=X9700SAM (with font samples, printed on the 9700)
  MANUAL=X9700 (without fonts, output from line printer)
  This Guide is also available in hardcopy from the Information Office. This is the cheapest way to obtain it.

To print online documents, WYLBUR users type "do document?", TSO users type "help document", APL users type ")LOAD 1 UTCSGUIDE <CR> HELP".

## Recent Acquisitions in the Computer Library

Barwise, Jon and Perry, J.
Situations and attitudes.
Cambridge, Mass., MIT Press, 1983.

Clark, K.L. and Tarnlund, S.-A., eds.
Logic programming.
London, Academic Press, 1982.

Dowty, David R. et al.
Introduction to Montague semantics.
Dordrecht, Holland, D. Reidel, 1981.

George, Alan, and Liu, J. W-H.
Computer solution of large sparse positive definite systems.
Reading, Mass., Addison-Wesley, 1981.

Hirst, Graeme.
Anaphora in natural langugage understanding: a survey.
New York, Springer-Verlag, 1981.

Hume, J.N.P. and Holt, R.C.
Better BASIC for the IBM PC.
Reston, Va., Reston Pub. Co., 1983.

Hume, J.N.P. and Holt, R.C.
Better BASIC for the Apple.
Reston, Va., Reston Pub. Co., 1983.

Lazowska, Edward D. et al.
Quantitative system performance: computer system analysis using queuing

continued...

**Recent Acquisitions in the Computer Library** continued

network models.
Englewood Cliffs, N.J., Prentice-Hall, 1981.

Muchnick, Steven S. and Jones, N.D.
Program flow analysis: theory and applications.
Englewood Cliffs, N.J., Prentice-Hall, 1981.

Office Automation Conference, 4th, Philadelphia, Feb. 1983.
Digest.
Reston, Va., AFIPS Press, 1983.

Rice, John Rischard.
Numerical methods, software, and analysis: IMSL reference edition.
New York, McGraw-Hill, 1983.

Stanton, Jeffrey, et al, eds.
The Addison-Wesley book of Apple computer software 1983.
Los Angeles, The Book Company 1983.

*Stephanie Johnston*

# Consulting and Enquiries

| | | | |
|---|---|---|---|
| Advising Supervisor | Alex Nishri | MP257 | 7109 |
| External Marketing Consultant | Ihor Prociuk | MP345 | 6875 |
| Erindale College | Peter Wall | 2043 | 828-5311 |
| Scarborough College | William Barek | S626 | 284-3173 |

| | | | |
|---|---|---|---|
| General Enquiries | Dale Wright | EA206 | 4990 |
| Account & Access Code Enquiries (U of T) | Agatha Stevens | MP337 | 8703 |
| Account & Access Code Enquiries (External) | Sylvia May | MP337 | 7148 |
| Tape Library (Academic Services) | Stella Martin | MP368 | 7319 |
| Tape Library (Administrative Services) | Miranda Fong | MP368 | 6693 |
| U of T Computer Library | Stephanie Johnston | EA206 | 2987 |

| | | | |
|---|---|---|---|
| Central Advising Office (Appointments) | HELP | 300 Baud Interactive Services | 6200 |
| Central Advising Office (Phone-in) | HELP | 1200 Baud Interactive Services | 3959 |
| System Status Enquiries (DEC) | 4318 | DATAPAC | 4320, 0056 |
| System Status Enquiries (IBM) | 7393 | Telenet | 0302043200056 |
| | | Tymnet | <backspace> DPAC;302043200056 |

# UTCS Directory

| | | | |
|---|---|---|---|
| Director | Dr. Warren Jackson | MP350 | 8948 |
| Associate Director | Eugene Siciunas | MP350 | 5058 |
| Senior Budget Analyst | Sheila Brown | MP350 | 8697 |

**Managers**

| | | | |
|---|---|---|---|
| Communications & Technical Support | Norman Housley | SF4306 | 4967 |
| Internal Systems & Administration | Wendy Chin | MP350 | 4428 |
| Operations | Dr. Bob Chambers | MP350 | 7092 |
| Systems | Bill Lauriston | MP331 | 3579 |
| User Interface | Don Gibson | MP345 | 7331 |

# Committees on Computing

| | | | |
|---|---|---|---|
| UTCS Board | Chairman | Prof. D.M. Nowlan | 4984 |
| BICS Steering Committee | Chairman | Prof. R.C. Holt | 8726 |
| Committee on Academic Computing | Chairman | Prof. J.Z. Buchwald | 7391 |
| Committee on Computer Networks & Telecommunications | Chairman | Mr. A. Heyworth | 4936 |
| Committee on Computing Facilities & Services | Chairman | Prof. J.D. Bossons | 8626 |
| Computing Disciplines Facility | Chairman | Prof. E.C.R. Hehner | 6026 |
| LIBRA Steering Committee | Chairman | Prof. G.S. Graham | 6321 |
| Natural Language Processing Steering Committee | Chairman | Prof. I. Lancashire | 828-5273 |
| UTCS Users' Committee | Chairman | Prof. J.C. Hurd | 3056 |
| | Secretary | Ms. C. Pereira | 4463 |

# UTCS Terminal and Advising Sites

## Names and Locations

- **Central Advising Office (CAO), 978-HELP**
- **Education Facility (Educ),** McLennan Labs, 60 St. George St., Room 221
- **Engineering Annex (EAT, EUT, CDF),** 11 King's College Road, Rooms 103, 104, 107, 201, 203.
- **Erindale College (Erin), 828-5339,** Mississauga Road, Erindale Campus, Rooms 2005, 2039, 2045
- **New Physics (NPT),** Burton Tower, 60 St. George St., Room 1202
- **Robarts,** Robarts Library, 130 St. George St., Room 1061A
- **Scarborough College (Scar), 284-3122,** Military Trail, Scarborough Campus, Room S624, S625, S627, S628, S628A
- **Sidney Smith (AST & ASUT),** 100 St. George St., Rooms 1071, 1073, 2105
- **St.Michael's College,** 121 St. Joseph St., Room 101
- **Trinity College,** 6 Hoskins Ave., Room 024
- **Victoria University,** 73 Queens Park Cres., Room 012.

| **Sites** | **Hours of Operation** | | | | **Restrictions*** | **Advising** |
|---|---|---|---|---|---|---|
| | Mon-Thurs | Fri | Sat | Sun | | |
| AST | 8:00-22:00 | 8:00-22:00 | 8:00-22:00 | 8:00-22:00 | Research | Rm 2100 |
| ASUT | 24 hrs/day | 24 hrs | 24 hrs | 24 hrs | BICS | Arranged by DCS |
| CAO | 10:00-18:00 | 10:00-18:00 | closed | closed | Research | 978-HELP |
| CDF | 24 hrs/day | 24 hrs | 24 hrs | 24 hrs | Res/Under | No |
| EAT | 24 hrs/day | 24 hrs | 24 hrs | 24 hrs | Research | Rm 106 |
| Educ | 9:00-16:30 | 9:00-16:30 | closed | closed | Research** | 978-HELP |
| (outer) | 9:00-16:30 | 9:00-16:30 | closed | closed | Research | 978-HELP |
| Erin (2039) | 9:00-21:00 | 9:00-17:00 | 12:00-17:00 | 12:00-17:00 | Research | Rm 2005 |
| (2045) | 9:00-21:00 | 9:00-17:00 | 12:00-17:00 | 12:00-17:00 | Undergrads | Rm 2005 |
| EUT | 24 hrs/day | 24 hrs | 24 hrs | 24 hrs | BICS | Arranged by DCS |
| NPT | 24 hrs/day | 24 hrs | 24 hrs | 24 hrs | Research (Key access) | 978-HELP |
| Robarts | 8:30-24:00 | 8:30-24:00 | 9:00-17:00 | 13:00-22:00 | BICS | Arranged by DCS |
| Scar | 9:00-24:00 | 9:00-24:00 | 10:00-17:00 | closed | Research | Rm S624, S626 |
| | | | | | Undergrads | Rm S624 |
| St.Michael's | 24 hrs/day | 24 hrs | 24 hrs | 24 hrs | BICS | Arranged by College |
| Trinity | 8:00-22:00 | 8:00-22:00 | 8:00-22:00 | 8:00-22:00 | BICS | Arranged by College |
| Victoria | 8:30-23:00 | 8:30-23:00 | closed | closed | BICS | Arranged by College |

* Research includes graduates, faculty, staff. ** May be unavailable due to UTCS courses.

## Advising Hours

| | | | |
|---|---|---|---|
| AST | Monday to Friday, 10:00 - 18:00 | Erin, Scar | During normal hours |
| CAO | Monday to Friday, 10:00 - 18:00 | ASUT/EUT/ROBARTS | Monday to Thursday, 14:00 - 17:00 |
| EAT | Monday to Friday, 13:00 - 17:00 | | Friday, 14:00 - 16:00 |

## Services Available

(Y=yes, N=no)

| | BICS | Keypunch | LIBRA | PACX | Printers | Oracle | UNIX |
|---|---|---|---|---|---|---|---|
| AST | N | Y | N | Y | Y | N | N |
| ASUT | Y | N | N | N | Y | Y | N |
| CDF | N | N | N | N | Y | N | Y |
| EAT | N | Y | N | Y | Y | N | N |
| EUT | Y | N | Y | N | Y | Y | Y |
| Educ | N | N | N | Y | N | N | N |
| Erin | N | N | Y | Y | Y | N | Y |
| NPT | N | Y | N | Y | Y | N | N |
| Robarts | Y | N | N | N | Y | Y | N |
| Scar | N | Y | Y | Y | Y | N | Y |
| St.Michael's | Y | N | N | N | Y | Y | N |
| Trinity | Y | N | N | N | Y | N | N |
| Victoria | Y | N | N | N | Y | N | N |

# UTCS Systems

**3033/N12 Processor**

- located in McLennan Physical Laboratories
- provides General Purpose Job Stream, TSO, WYLBUR, APL
- 12 megabytes of memory
- MVS with JES2

**3033/U16 Processor**

- located in McLennan Physical Laboratories
- provides instructional access using BICS
- 16 megabytes of memory
- UTS (modified UNIX Seventh Edition) under VM/370

**4341 Mod II Processor**

- located in McLennan Physical Laboratories
- provides administrative IMS/VS, DB/DC, Batch and TSO
- 16 megabytes of memory
- MVS with JES2

**DECsystem-10 Model 1090**

- located in McLennan Physical Laboratories
- provides General Purpose Time-Sharing
- 512 K - 36 bit words of memory
- TOPS-10 operating system, version 7.01A
- GALAXY queuing, spooling, and batch subsystem, Version 4.1

**PDP 11/70 SAS/DPS UNIX**

- located in McLennan Physical Laboratories
- provides UNIX text processing & Statistical Analysis Service (Dept. of Statistics)
- 4 megabytes of memory
- typesetting hardware (CAT/8) and, Varian for previewing typset output
- UNIX Seventh Edition

**VAX 11/750**

- located in McLennan Physical Laboratories
- provides backup, program testing, and inter-communication relating to student services
- 3 megabytes of memory
- VMS

**Computer Disciplines Facility**

VAX 11/750 (2 megabytes of memory)
VAX 11/780 (4 megabytes of memory)

- located in Engineering Annex
- provide Computer Science interactive access
- UNIX (Berkeley Unix 4.2BSD)

**Communications & Technical Support**

- located in Sandford Fleming Building, Fourth Floor
- Communications Group provides communications systems, terminals, modems, data channels: consulting and installation.
- Field Service Group installs and maintains small computer systems on a contract basis or on a cost-per-call basis.
- provides consulting on minicomputers; configures and installs minicomputer systems

**Microcomputer Facility**

- located in McLennan Physical Laboratories
- provides consulting on microcomputer systems
  Machines include:
  IBM Personal Computer, APPLE II Plus,
  TRS-80 Model 1, S-100 CP/M System,
  Osborne Micro, plus a variety of
  others on loan from supppliers
- offers media conversion services

**Scarborough College Systems**

VAX 11/750 (2 megabytes of memory)

- provides instructional access using LIBRA
- VMS

VAX 11/750 (5 megabytes of memory)

- provides instructional access using UNIX (Berkeley Unix 4.2BSD)

**Erindale College Systems**

VAX 11/780 (4 megabytes of memory)

- provides instructional access using LIBRA and Research access
- VMS

VAX 11/750 (5 megabytes of memory)

- provides instructional access using UNIX (Berkeley Unix 4.2BSD)

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